Privatization and Poverty Reduction in Vietnam
Optimal choices and its potential impacts

RESEARCH PROPOSAL
Presented to
Poverty and Economic Policy Network

COUNTRY: VIETNAM

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The authors are solely responsible for the opinions expressed in this paper. We would like to thank the anonymous referees from PEP network for their valuable comments and recommendations.

This version, 28th February 2009
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1. Abstract

Since its transition from a centrally planned economy to a market economy, Vietnam has been under pressure to reduce the size of the state-owned sector. In this process, the private sector has emerged. In 1990s, restructuring of state owned enterprises (SOEs) through mergers and consolidations, halved their number from 12,000 in 1991 to less than 6,000 in 1994 (Webster and Amin, 1998). Privatization during the following more than ten years reduced the total SOEs to roughly 2,176 in 2007 (Central Institute for Economic Management (CIEM), 2007). However, the SOE reform did not mean to weaken their economic power. That the share of state sector in GDP was firmly increasing during this period reflects “Hanoi’s consensus” on the “dominating role of state sector” as a fundamental characteristic of the “socialism-oriented market economy”. Hence, there is no guarantee that the SOE reform has been well conducted and its assumed contribution to economic growth and poverty reduction is not well analyzed.

The objective of this study is to examine how the privatization could contribute better to economic growth and hence further accelerate poverty reduction in Vietnam.

We use a variant of the multi-sectoral integrated activity analysis model as proposed by Ngoc and Mohnen (2004), and apply it to the data of the Vietnamese economy during 2000-2005 to measure the impacts of ownership restructuring on economic growth. If labor and capital could reallocate across sectors and types of ownership, what would be the optimal allocation of activities and the feasible level of domestic final demand?

To examine the impact of privatization on poverty reduction, the study analyzes various inequality measures (Gini coefficient and Theil index) and poverty measures (head count index, poverty gap index and squared poverty gap index) under alternative scenarios of privatization. For this purpose, the model keeps track on different scenarios of the mobility of labor endowments.

Main contributions of this proposed study are fourfold. First, the study shows how poverty analysis would be linked with multi-sectoral integrated activity analysis. Second, we demonstrate that further privatization is the important driving forces of economic growth and poverty reduction in Vietnam. Third, we propose a specific pattern of SOE reform for Vietnam. Fourth, alternative experiments on the mobility of labor to measure impacts of privatization on poverty reduction allow the government to choose the relevant policies.

*Keywords:* Vietnamese economy, transition economy, privatization, economic growth, poverty reduction, general equilibrium.
2. Main research questions and core research objectives

Since 1986 Vietnam has made the transition from a centrally planned to a market economy. One of the most striking features of Vietnam’s transition has been the steady growth of output (see figure 1) and remarkable achievement of poverty reduction without widening inequality (Klump, 2007).

**FIGURE 1 Economic Growth in Vietnam, 1985-2007**

![Graph showing economic growth in Vietnam from 1985 to 2007.](image)


Vietnam’s performance is marked by SOE reform and the emergence of viable private sector facilitated by a new legal framework for private enterprise.

When Vietnam was a centrally planned economy, government and SOEs (including co-operatives) were the only two sectors. All economic activity was planned and controlled by government. The labor and capital markets were no exception. Based on the overall plan laid down by the government, the number of workers as well as the capital stocks for each organization was determined by their respective administrative units. A salary budget was allocated to each organization and workers were paid according to a predetermined scale.
The inefficiency of the central planned system resulted in the collapse of many SOEs, forcing the government to embark on economic reform. *Doi Moi* (economic reform), unveiled in 1986, represented a significant step towards a market economy. One important feature during the reform was the gradual demise of SOEs and the gradual expansion of private firms. The number of SOEs dropped from some 12,000 to about 6,000 by April 1995 (Webster and Amin, 1998). The state enterprise reform first gave the enterprises more autonomy and flexibility in their decision making. The real privatization of SOEs started in 1992. This was to be accomplished through sales of enterprise shares to employees on preferential terms, to domestic private and public investors, and to foreign investors on a limited basis. More than 10 years later, the total number of SOEs was roughly 2,176 in 2007 (CIEM, 2007).

The opening of Hanoi Securities Trading Center (HASTC) in 2005 and Ho-Chi-Minh City Stock Exchange (HOSE) in 2007 enabled SOEs to issue shares to the public. So far, there are 249 share and fund certificate items listed on the HCM City Stock Exchange and Hanoi Securities Trading Centre (138 on HOSE and 111 on HASTC) (Vietnamese Economic Time, 2007). In 2007, the stock market value was accounted for 40% of GDP, far exceeding the 25-30% levels set by the Prime Minister. It is expected that the market capitalization value in 2008 would account for 50-60% of GDP (Vietnam Economic Time, 2008). The Vietnamese government ensures to speed up the pace of privatization in order to meet the increasing demand of stock market. Currently, the number of listed companies just account for 2% of total joint stock companies now operational in Vietnam (Vietnam Economic Time, 2008).

The SOE reform and the emergence of the private sectors significantly affected the quantity and quality of job creation in Vietnam (Klump, 2007). By the end of 1996, Vietnam had 6,020 State enterprises employing some two million people. These comprised about 1,140 enterprises belonging to state corporations, 500 centrally-controlled state enterprises, and 4,380 locally-controlled state enterprises (Webster and Amin, 1998). Along with the falling number of SOEs, the level of employment in SOEs has decreased dramatically since the launch of *Doi Moi* (O’Conner, 1996). State sector employment in 1986 accounted for about 15% of total employment. Between 1986 and the mid-1990s, total state sector employment dropped by over a quarter (Liu, 2004). During 1991 to 1999, employment share of SOEs dropped form 6.5% to 4.8% (Vo, 2000). By contrast, employment in the (formal) private sector more than doubled between 1996 and 2000 (World Bank, 2001) and the number of jobs created by the private sectors was three times higher than those created by SOEs (Liu, 2004).

However, the SOE reform did not mean to weaken their economic power. That the share of state sector in GDP was firmly increasing during the period of privatization (see Figure 2)
reflects “Hanoi’s consensus” on the “dominating role of state sector” as a fundamental characteristic of the “socialism-oriented market economy”. Figure 2 shows that since 1990, the state sector’s share in GDP had kept increasing until 1995 and standing constant for a quite long period of time. This discloses a fact that SOE restructuring programs only aims at strengthening the state sector. Especially, the year 1996 observed a series of conservative policies (Womack, 1997). In June 1996, the Eighth Party Congress reemphasized the “leading role” of the state sector as a strategic task. The state investment hence accelerated with a pace more rapid than any other period (see Figure 3).

**FIGURE 2 Structure of GDP at current price by ownership, 1990-2007**

In summary, Vietnam has achieved an impressive record of GDP growth as well as industrial growth in the transition period. Accompanying this growth is some degree of ownership restructuring. This compositional change results from the decline of the number of SOEs, the emergence of the private sectors, and the movement of employment to private sectors resulted from absorbing retrenched SOE workers and private sector’s job creation. This has prompted questions about whether or not as the case of other countries, ownership restructuring fuelled by privatization is an important source of growth. Another view would be that privatization is an important and main driver of poverty reduction. This view receives
some support from Klump (2007). In his study on pro-poor growth in Vietnam, he argues that “new legal framework for private enterprise, facilitated the emergence of private sectors and the movement of employment from informal to formal sector industry and services…significantly affected the quality and quantity of job creation in Vietnam” and hence “income growth and poverty reduction occurred in both urban and rural area” (Klump, 2007, p.120).

FIGURE 3 Structure of Investment at current price by ownership, 1990-2007


The main objective of this proposed study is: to analyze the impacts of privatization on economic growth and to understand under what conditions, privatization would result in higher poverty reduction.2

The main research questions are:

1. The first research question focus on the optimal distribution of economic activity across ownership structure: If labor and capital could relocate across sectors and types of ownership, what would be the optimal allocation of activities and the feasible level of domestic final demand?

2. The second research question relates to inter-sectoral differences in poverty reduction: As privatization proceeds, what accounts for these differences?
So the sub-research questions are:

a. What would be the optimal allocation of labor across sectors and types of ownership? What would be the level of job-creation in each scenario?

b. What would be the predicted level of households’ expenditure across sectors, types of ownership, types of labors’ skill?

What would be the new level of inequality (Gini coefficient and the Theil L index) and new level of poverty (headcount index, poverty gap and squared poverty gap)?

The next four research questions concern key economic policies namely privatization policy, foreign investment policy and national strategy for technological improvement and poverty reduction:

3. In which sector(s) the presence of state-owned enterprises should be continued?

4. In which sector(s) the presence of foreign invested enterprises should be enhanced?

5. At a macro level, the fifth research question concern national strategy for technological improvement in order to achieve industrialization in Vietnam:

   Does the future ownership structure in Vietnam depend on upgrading from their current comparative advantage in low-tech, labor-intensive, low wage industries or should they seek to lock-out the low and medium technology sector by shifting to sophisticated high-tech, capital intensive, high wage industries?

6. The last research question concerns inter-sectoral differences in poverty reduction

   In which sector(s) privatization leads to more poverty reduction and vise versa? What should be the trade-off between economic growth and poverty reduction for each option?

3. Knowledge gaps and scientific contribution of the research

Economists have recognized the impacts of ownership structural change caused by privatization on economic growth. The impact of privatization on firm-specific productivity growth was examined by Ehrlich, Gallais-Hamonno, Liu and Lutter (1994). They focus on the effect of state versus private ownership on the rates of firm economic performance. Their model and empirical results show the link between ownership and firm-specific rates of productivity growth. They argue that, the shift from complete state to full private ownership can increase the long-run annual rate of TFP growth. However, the result shows that in the short-run, this effect is expected to be ambiguous theoretically.

Megginson and Netter (2001) investigate the process of privatization. After being privatized firms raise its productivity, increase its investment and lower its prices. Consequently, the
performance is improved and due to state firm produces only a fraction of GDP, they argue that such improvements translate into a gain in aggregate growth.

Another study is on impact privatization is on the increase of foreign-owned shares in domestic firms on economic performance of developing countries by Henry (2003). He argues that the developing countries would benefit from opening themselves to investment from overseas. As the shares held by foreigners increases, the whole economy growth averaged 1.1 percent points higher after liberalization than before.

Privatization, according to McMillan (2004), is generally beneficial economically, particularly for transition economies, but not a sole driven force of improving economic performance. McMillan argues that state-owned firm depends on its economic environment for improving its performance. He points out that the experience of “big bang” reform – such as privatization so fast – justifies the caution to “avoid hubris” because some mistakes created new problem of state capture and underdeveloped institutions. However, Havrylyshyn (2004) offers two caveats, which firmly support to the arguments that (i) the benefits of privatization without a proper accompanying climate of open competition and the rule of law maybe very small or even negligible; and (ii) privatization has resulted in a strong concentration of ownership, “it created unintended consequences of speeding up privatization by co-opting insider and then may have been the most important error of reform advocates and certainly one area where humility is called for” (Havrylyshyn, 2004, p. 40).

There is a paucity of studies on impact of SOEs reform and/or privatization on poverty reduction in Vietnam. Huong et al (2003) calculates the employment elasticity of growth and finds that during 1992-1997, the elasticity was highest in agriculture where productivity remained low. She argues that this is because agriculture absorbed jobless rural youth and workers retrenched by SOE reform, and hence agriculture growth made its effect on poverty reduction, mainly in the South of Vietnam.

In his study, Klump (2007) argues that privatization in Vietnam, and the emergence of private sector significantly affected the quality and quantity of job creation. Job creation along with income growth as a consequent of the reform process is combining factor inputs to shrink poverty. Although showing that there is a increasing trend of job creation in private non-farm sector, Klump do not certain about positive impact of privatization on poverty reduction without widening inequality.

This proposed study aims at making a contribution on literature of privatization and fill in the gap by studying on the translating impacts of privatization under various scenarios of mobility of labor into poverty reduction and inequality. The study also contribute to the literature of general equilibrium by applying new technique, which was first developed by of ten Raa and Mohnen (2002), and its variant by Ngoc and Mohnen (2004).
4. Policy relevance

In this proposed study, there are 4 policy research questions concern economic and poverty reduction policies. Analysis of various scenarios of privatization and its impacts on poverty reduction could result in a number of policy implications from which policy makers would well benefited. Hence, this study could be a good reference for policy design for privatization, FDI promotion strategies/policies, and national strategy for technological improvement and poverty reduction.

The first policy research question (3rd research question) concerns the Government’s vision of “dominating role of state sector” or the “Hanoi’s consensus” on the trends in privatization:

3. In which sectors the presence of state-owned enterprises should be continued?

By answering the first policy research question, this study would contribute to the debate that the present SOEs should be remained in some key sectors as we could not neglect one important factor of success of the Doi Moi is the contribution of SOE sector on the wealth of Vietnam.

The second policy research question concerns the Government strategy to attract FDI flow into Vietnam:

4. In which sectors the presence of foreign invested enterprises should be enhanced?

As shown in figure 4 and 5, foreign invested sector play an increasing role as an inevitable component of Vietnamese economy. Its share in GDP went up from 13.27% in 2000 to 17.01% in 2006. Moreover it has contributed for more than 50% of the total export value of the whole economy since 2003. The shares of FDI contribution in GDP and export continue to growth. Since 2000, there were a numerous of comprehensive actions of the Government in gradually improving the investment climate and creating more favorable conditions for foreign invested sector.

At a macro level, the third policy research question concern national strategy for technological improvement in order to achieve industrialization in Vietnam:

5. Does the future ownership structure in Vietnam depend on upgrading from their current comparative advantage in low-tech, labor-intensive, low wage industries or should they seek to lock-out the low and medium technology sector by shifting to sophisticated high-tech, capital intensive, high wage industries?

According to Chenery (Chenery et al. 1986), useful measure of progress with respect to industrialization is the contribution to overall productivity of productivity gains resulting

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1 We thank an anonymous referee for this suggestion.
from the reallocation of labor when employment shifts from low productivity to higher productivity sectors. Some evidence on sources of growth in developing countries shows that with a few exceptions, most growth there is based on capital accumulation (Collins and Bosworth, 1986), with structural change and technical change delivering a positive but weak contribution to growth. Assuming the industrialization hypothesis is consistent with the sources of economic growth in general, we want to explore if there are signs of ownership structural change of a progressive kind supporting industrialization and hence contribute to economic growth.

This study will contribute to the debate that whether counties with industrial structure oriented to low and medium technology industries can grow rapidly or not. Given the results of study at the national and industrial level, this study aim at: (i) providing a suitable analytical framework for developing countries particularly those are in transition period within which to address policy issue; (ii) appropriate development strategies for nations which currently depend on their comparative advance in low-tech, labor-intensive, low wage industries.

The last policy research question concerns inter-sectoral differences in poverty reduction. As economic growth and poverty reduction have been the core development objectives and have been given the highest priority of Vietnamese Government. Therefore, the study also aims to seek to the answers of policy research question:

6. In which sector(s) privatization leads to more poverty reduction and vise versa? What should be the trade-off between economic growth and poverty reduction for each option?
FIGURE 4 Trend in contribution to GDP of FDI sector, 2000-2007

Source: GSO (2007)

FIGURE 5 Trend in contribution to export of FDI sector, 2000-2007

Source: GSO (2007)
5. Methodology

5.1. The general equilibrium model

We use a variant of general equilibrium (GE) model as proposed by Ngoc and Mohnen (2004) - a multi-sectoral integrated activity analysis model - and apply it to the data of the Vietnamese economy during 2000-2007 to measure the impacts of ownership restructuring on economic growth. The basic idea is that if labor and capital could reallocate across sectors and types of ownership, what would be the optimal allocation of activities and the feasible level of domestic final demand? 

The basic GE model was first developed by ten Raa and Mohnen (2002). The basic idea of the efficient allocation of resources can be illustrated graphically in Figure 1. According to ten Raa and Mohnen (2002) a basic model for an open economy with two commodities works as follows:

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Net output is given by vector \( y \). Trade moves it to the domestic final consumption vector, \( f \). (Domestic final demand is consumption plus investment, but not net exports. Note that commodity 1 is exported and commodity 2 imported.) Trade is a means to align domestic final consumption with the preference. Assuming a Leontief welfare function, the optimum is attained by expanding vector \( f \) in its own direction, up to \( fc \), where \( c \) is the expansion vector. In figure 1 this is achieved by three things. Production \( y \) is pushed to the production possibility frontier (the curved line), reallocated in favor of output 2, yielding point \( y^* \), and the pattern of trade is changed (exporting commodity 2 and importing commodity 1). The frontier of domestic final consumption, \( fc \), is attained by the elimination of slack and the reallocation of resources across sectors. Expansion vector \( c \) is a negative measure for efficiency. If \( c = 1 \), the economy is already at its optimum. If \( c = 1.1 \), the economy’s potential is 10% more than actual performance.” (ten Raa and Mohnen, 2002, pp. 114-115)
```
Now consider our model. In this study we set up a GE model for both an open and a closed economy, with fixed domestic endowments, and tradeable and non-tradeable commodities (only with open economy mode). We assume the Leontief functions for the technologies and preferences. The efficient allocation of resources is obtained by pushing the economy to its frontier by maximizing the level of domestic final demand.

**Mode I.** Mode I is a close economy model, in which trade is taken as exogenously fixed at actual observed levels for all commodities. In model I we do not differentiate between types of ownership. This means that the dimension of activity level vector $s$ is [# of sectors].

The standard model works as follows. The primal program is:

(1) \[
\max_{s^1, c^1} e^T f c^1 \text{ subject to } \\
\left(V^T - U\right)s^1 \geq fc^1 + g \\
Ls^1 \leq N \\
Ks^1 \leq M \\
s^1 \geq 0
\]

where the endogenous variables ($s^1, c^1$ and $g$) and all other variables and parameters are defined as follows [with dimensions in brackets]:

- $s^1$: activity vector [# of sectors]
- $c^1$: level of domestic final demand [scalar]
- $g$: vector of net export [# of tradable commodities]
- $e$: unit vector of all components one
- $T$: transposition symbol
- $f$: domestic final demand [# of commodities]
- $X$: vector of gross output
- $V$: make table [# of sectors by # of commodities]
- $U$: use table [# of commodities by # of sectors]
- $K$: capital stock row vector [# of sectors]
- $L$: labor employment row vector [# of sector]
- $M$: capital endowment [scalar]
- $N$: labor force [scalar]
Associated to this primal program is the following dual program:

\[ \min_{p, r, w \geq 0} rM + wN \text{ subject to} \]
\[ p \left( V^T - U \right) \leq rK + wL \]
\[ pf = e^T f \]

The variables in the dual program are the shadow prices \( p \) of commodities, \( r \) of capital, \( w \) of labor, and \( e \) of foreign debt (the exchange rate). Since the commodity constraint in the primal program has a zero bound, \( p \) does not show up in the objective function of the dual program. \( p \) is normalized by the second dual constraint, essentially about unity.

It is note that due to the fact that in short-run, capital stocks are sectoral specific and immobile (such as machine buildings or lands cannot be assigned easily from one to other industries). Ideally, it is worth to test the model at which capital stocks are sectoral specific. However, as we increase number of constraints but variables stay, the possibility of collinearity could likely be happened (matrix singular). In the sectoral specific model, constraints for capital stock are as follows:

\[ \left\{ \text{eye}(n) \ast \sim K \right\} s \leq M \]

where:

\( \text{eye}(n) \) identity matrix [\# of sector by \# of sector]

\( \ast \sim \) element-by-element matrix operators (horizontal direct product \( z = x \ast \sim y \) : the input matrices must have the same number of row. The result will have cols(x)*cols(y) columns)

The primal program (1) in which capital stocks are sectoral specific could be rewritten as follows:

\[ \max_{s', c} e^T f c' \text{ subject to} \]
\[ \left( V^T - U \right) s' \geq f c' + g \]
\[ Ls' \leq N \]
\[ \left\{ \text{eye}(n) \ast \sim K \right\} s \leq M \]
\[ s' \geq 0 \]
**Mode II.** In model II, we apply the 5-type of ownership split to all # of sector of the input-output tables. Now each production sector will be split into five sub-sectors corresponding to five types of ownership. Therefore, the dimension of activity level increases to [# of sectors times # of ownership types]. In this model, capital stocks are sectoral specific. The primal program is the variant of the (1) as follows:

(5) \[
\max_{s^2, c^2} e^T f c^2 \text{ subject to }
\]
\[
\begin{align*}
(V_{\text{split}}^T - U_{\text{split}})s^2 &\geq fc^2 + g =: F \\
(L_1 \sim L_2 \sim L_3 \sim L_4 \sim L_5)s^2 &\leq N_1 + N_2 + N_3 + N_4 + N_5 \\
\{\text{eye}(n)^* \sim K\}s &\leq M \\
s^2 &\geq 0
\end{align*}
\]

where

- \(s^2\) activity vector [# of sectors times # of ownership types ]
- \(c^2\) level of domestic final demand [scalar]
- \(V_{\text{split}}^T\) matrix resulted from splitting columns of \(V^T\) by type of ownership
- \(U_{\text{split}}\) matrix resulted from splitting columns of \(U\) by type of ownership
- \(F\) final demand [# of commodities]
- \(L_i\) (i = 1, 2, …, 5) labor employment vector in ownership category i [# of sector]
- \(N_i\) (i = 1, 2, …, 5) labor force in ownership category i [scalar].
- \(K_i\) (i = 1, 2, …, 5) capital stock vector in ownership category i [# of sector]
- \(M\) Capital endowment [scalar].
- \(~\) horizontal concatenation operator.

Labor and capital are classified by 5 types of ownership, namely central-state-owned, local-state-owned, 100% domestically private-owned, joint-venture and 100% foreign-owned. We assume full mobility of labor and capital across sectors and types of ownership.
Mode III. It is also note that Vietnam being an open economy, international trade to a certain extent plays a role as a means to improve equality and reduce poverty. This mode is an open economy model where we consider net export is an endogenous variable. However open economy model could leads Vietnam to close in most of its sectors and only few sectors with high level of trade volume (net export) will exists. In order to avoid the unexpected solution of total dependence on foreign supply, in this model, we isolate non-tradable goods (those with zero net export) and force their activity levels ($s_{\text{non-tradable}}$) to be equal to activity level of domestic final demand ($c$). The primal program is as follows:

\[
\max_{s',c,g} e^T fc^3 \text{ subject to }
\]

\[
\begin{align*}
\left(V^\top \text{split} - U^\top \text{split}\right)s^3 &\geq fc^3 + Jg =: F \\
(L_1 \sim L_2 \sim L_3 \sim L_4 \sim L_5)s^3 &\leq N_1 + N_2 + N_3 + N_4 + N_5 \\
\text{eye}(n)^T - Ks &\leq M \\
-e^T g &\leq -e^T g' =: D \\
n^2 &\geq 0
\end{align*}
\]

\[g\] vector of net export [# of tradable commodities]

\[g'\] vector of net exports observed at time t [# of tradable]

\[J\] 0-1 matrix placing tradeables [# of commodities by # of tradeables]

\[D\] observed trade deficit [scalar]

and the dual program is:

\[
\min_{p,r,w,\varepsilon \geq 0} rM + wN + \varepsilon D \text{ subject to }
\]

\[
\begin{align*}
p\left(V^\top \text{split} - U^\top \text{split}\right) &\leq rK + wL \\
pf &= e^T f \\
pJ &= \varepsilon
\end{align*}
\]

\[K\] capital stock matrix [# of sectors by # of ownership types]

\[L\] labor employment matrix [# of sector by # of ownership types]

\[^2\text{We thank an anonymous referee for this suggestion.}\]
**Mode IV.** There is evidence that poverty measures are sensitive to factor endowment; as poor people seem to be less educated, qualified and equipped than rich people. Taking this point into account, we consider different categories of labor in this mode. For each type of ownership, labor is classified into four groups of skill level, namely technicians, managers, skilled and unskilled workers.

However as $U$ and $V'$ exist only with respect to the number of industries and types of ownership, hence $U$ and $V'$ matrices have to be unsplit. Therefore in this mode instead of extend the number of activities even further towards different levels of skill, we increase the number of labor constraints. As each sector produces one kind of good or service, there is an unique technology used by firms in each sector. Hence we could assume that labor in each sector could belong to one level of skill with respect to the level of technology used by this sector. Using capital-labor ratios as a proxy for technological capability of firm in each sector we could then classify total labor fore into four groups according to four skill levels. Constraints for labor is made by allowing workers can work in lower skill-requiring jobs. We assume labors are full mobility.

Following ten Raa and Pan (2005), we could define asymmetric movements of labor by assume the rule of labor movement as follows: (i) technicians can do any of jobs; (ii) managers can do their own job and also capable of doing skilled and unskilled works; (iii) skilled workers can do their own job as well as unskilled works; and (iv) unskilled workers can only perform their own jobs. According to ten Raa and Pan (2005), the labor constraints for each type of ownership $i = 1,\ldots, 5$ could be written as follows:

\[
\begin{align*}
\sum_i l'_1 s^i &\leq \sum_i N'_1 \\
\sum_i (l'_1 + l'_2) s^i &\leq \sum_i (N'_1 + N'_2) \\
\sum_i (l'_1 + l'_2 + l'_3) s^i &\leq \sum_i (N'_1 + N'_2 + N'_3) \\
\sum_i (l'_1 + l'_2 + l'_3 + l'_4) s^i &\leq \sum_i (N'_1 + N'_2 + N'_3 + N'_4)
\end{align*}
\]

where:

- $l'_1$ row vector of technicians’ employment coefficients in ownership type $i$ [# of sector] with respect to the labor forces $N'_1$
- $l'_2$ row vector of managers’ employment coefficients in ownership type $i$ [# of sector] with respect to the labor forces $N'_2$
- $l'_3$ row vector of skilled workers’ employment coefficients in ownership type $i$ [# of
sector] with respect to the labor forces $N^i_3$

$l^i_4$ row vector of unskilled workers’ employment coefficients in ownership type $i$ [# of sector]

$s^i$ activity vector of ownership type $i$ [# of sector] with respect to the labor forces $N^i_4$

Furthermore, in order to better breakdown the channel of transmission and introduce greater heterogeneity among individuals, we would further try to disaggregate labor endowment by household income groups. The same way of modeling as in skill levels holds for income groups.

Capital stock constraints are same as in mode II. Mode IV could be tested under open and close economy model.

5.2. Measure the contribution on poverty reduction

The Vietnam Development Report 2000 shows that “sustained poverty reduction over the coming years must focus on three critical areas: creating opportunity, ensuring equity and reducing vulnerability” (World Bank, 1999, p.39). In this proposed study, poverty analysis will be focus on the two critical areas: creating opportunity and ensuring equity. To measure the contribution of privatization to poverty reduction, the model keeps track on different scenarios of the mobility of labor.

**FIGURE 6. Framework for attacking poverty**

![Framework for attacking poverty]

*Source: World Bank (1999)*

5.2.1. Creating Opportunity

Creating Opportunity has number of dimension. In this proposed study, we focus our analysis in net job-creation (defined as the different between optimal and observed levels of labor employment).
The multi-sectoral integrated activity analysis will resulted in optimal level of labor employment by sectors, types of ownerships and types of employment. Hence we could calculate net job-creation by sectors, types of ownerships and types of employment resulted from privatization in various scenarios.

5.2.2. Prediction of the real capital expenditure of households

In order to measure inequality indices and poverty indices, we shall predict the real capital expenditure of households. The reduced form expenditure model is as follows:

\[
 y_{i,j,k} = \beta_0 + \beta_1 X_i + \sum_{k=1}^{3} \theta_k Z_{j,k} + \epsilon
\]

where

- \( y_{i,j,k} \) real per capita expenditure of household \( i \), industry \( j \) with respect to ownership type \( k \).
- \( X_i \) vector which includes households’ characteristics (such as age, gender, education, etc.).
- \( Z_{j,k} \) vector of economic activity index (generated by the model) weighted by share of gross output of sector \( j \).

Equation (8) allows us to predict the real per capita expenditure of household \( i \) at an optimal allocation of input and production across sector and type of ownership so that we could use to calculate the inequality indices and poverty indices (described in the next section).

5.2.3. Inequality measures

There are two measure of inequality in this proposed study: the Gini coefficient and the Theil L index.

The Gini coefficient, by definition, is a ratio of the area under the Lorenz curve divided by the area under the diagonal line of equality. Data on incomes and/or per capital expenditure allows us to built the Lorenz curve and calculate the Gini coefficient.

In the proposed study, Gini coefficient could be calculated by using the equation as follows:

\[
 G = \frac{1}{n} \left( \frac{\sum_{i=1}^{n} (n+1-i) y_i}{\sum_{i=1}^{n} y_i} \right)
\]
and the Theil L index is calculated as follows:

\[
L = \sum_{i=1}^{N} \ln \left( \frac{Y}{y_iN} \right)
\]

where:

- \( N \) number of household [scalar]
- \( y_i \) per capita expenditure (observed and predicted)

**5.2.3. Poverty measures**

In this study, we adopt a method used by the World Bank (1999) for poverty measures. According to World Bank (1999), poverty has three main dimensions: the incidence of poverty (which measured by headcount index); the depth of poverty (which measured by the poverty gap); and the severity of poverty (which measured by the squared poverty gap). According to Foster et al (1984), these three poverty measures can be calculated as follows:

\[
P_\alpha = \frac{1}{N} \sum_{i=1}^{M} \left[ \frac{(z - y_i)}{z} \right]^\alpha
\]

where:

- \( N \) number of household [scalar]
- \( M \) number of the poor household [scalar]
- \( z \) poverty line (we can use poverty lines which were calculated by the World Bank)
- \( y_i \) per capita expenditure of household \( i \) [scalar]

when:

- \( \alpha = 0 \) \( P_\alpha = \frac{M}{N} \), we have headcount index.
- \( \alpha = 1 \) \( P_\alpha \) is poverty gap index.
- \( \alpha = 2 \) \( P_\alpha \) is squared poverty gap index.

**5.2.4. Information source for poverty analysis**

Two main information sources for poverty analysis are: national input-output tables of Vietnam, 2000 and 2005 and 2007; the Annual Enterprise Census Database (2000, 2005 and 2007) and Biannual Vietnam Household Living Standards Survey (VHLSS) database (for the availability of the data sources see next section).
6. Data requirement and sources

The study requires data complied from several sources.

As proposed, we use a variant of the multi-sectoral integrated activity analysis model and apply it to the data of the Vietnamese economy during 2000-2005. The national input-output tables of 2000 and 2005 will be used in the study. The national input-output table of 2000 and 2007 is published by General Statistic Office of Vietnam (GSO of Vietnam). The national input-output table of 2005 is unpublished data which was compiled by the research team in collaboration with GSO.

The data on capacity utilization are from the Statistical Year Books published by the General Statistic Office (GSO) of Vietnam.

In order to predict the real capital expenditure of households, the Vietnam Household Living Standards Survey (VHLSS) will be explored. The living standards survey is conducted every two years by GSO of Vietnam (available from 1993).

The VHLSS data set allows us to break down labor endowment into different group of income and levels of skill (technicians, managers, skilled and unskilled workers).

The data on sectoral gross output, labor and capital stock by type of ownership are available from The Annual Enterprise Census (available from 1999) published by the General Statistic Office of Vietnam.

7. Dissemination Strategy

The research team is based mainly at the Development and Policies Research Centre (DEPOCEN), which is an independent research organization engaged in doing research, problem-based training and disseminating of knowledge. DEPOCEN has continuously developed its network and outreach activities with various domestic and international research institutes/centers and universities as well as Vietnamese ministries and government bodies. It is hope that via the network of DEPOCEN, the research results will be disseminated through various channels both in the direct and indirect manner.

As mentioned above, on the one hand this proposed study aims at making a contribution on literature of privatization and on literature of general equilibrium. On the other hand, our research aims at feeding into policy formulation. Relevant policy makers and other potential users could use the outcomes as an input material for policy formulation and advocacy.

For such a purpose, the research team will try to disseminate the study’s findings, technique and knowledge during the whole research process. Dissemination manners could be way main ways with respect to two above purposes.
7.1. For a purpose of contribution on literature on privatization and on literature on general equilibrium

Seminars
At least two scientific seminars will be conducted. The scientific seminar could be organized in cooperation with one of (i) research institutes in Vietnam, with whom the DEPOCEN has close relationship, such as Central Institute for Economic Management (CIEM), National Institute for Science and Technology Policy and Strategy Studies (NISTPASS), Institute of labor and social affairs studies (ILSSA) and Institute of Development Studies (IDS); and (ii) the international development organization such as World Bank, UNDP, ILO, Vietnam Competitiveness Initiative (VNCI), etc.

Working papers
Main findings of the study will be published at least one or two working papers, and will be posted in the DEPOCEN Working Paper Series. The findings of the study will be also posted in international website of PEP. The team will make efforts to present the study in a format of PEP working paper.

Publication
The working paper(s) then will be submitted to be published at least one international economic journal and two or three of the domestic journals. The international economic journals where this research could be submitted are: Asian Economic Journal and Research Policy. The detailed methodology and findings could be published in one of the domestic economic journals, namely Vietnam’s Socio-Economic Development, which is published quarterly by the Vietnam Institute of Economics; The Economic Studies, which is published monthly by the Vietnam Institute of Economics; and Journal of Development Economics, the National Economic University (NEU), Hanoi. The brief finding and conclusions could be published in Economy and Forecast Review, published monthly by Ministry of Planning and Investment (MPI). The technical part could be published in Journal of Mathematical Application, the Mathematical Association of Vietnam.

7.2 For a purpose of contribution on policy formulation
There are four direct channels and one indirect channel, through which the research outcome could reach relevant policy makers and other potential users as an input material for policy formulation and advocacy. They are as follows:

3 The DEPOCEN Working Paper Series (DEPOCEN WP: www.depocenwp.org ) is the first ever peer reviewed economic research paper series in Vietnam. The Series is edited and supported by DEPOCEN WP Editorial Council and Editorial Board, whose members are well-known international and Vietnamese economists and researchers. Submissions of papers from all branches of economics are welcome.
Direct channel 1: Centre for Analysis and Forecasting (CAF), Vietnam Academy of Social Sciences (VASS).

DEPOCEN has close relationship with CAF. Dr. Nguyen Thang, Director of CAF, has regularly proposed joint-research projects between CAF and DEPOCEN in order to used as input materials for National Assembly. Hence, through CAF, our research outcome could be presented at regular meeting of National Assembly. Mr. Le Dang Trung, a member of the research team who is also a researcher at CAF, is in charge to coordinate with CAF for this task.

Direct channel 2: Vietnam Chamber of Commerce and Industry (VCCI)

One of the most important role of VCCI is advocacy. Dr. Vu Tien Loc, President of VCCI is also a Senator. Mr. Ngoc Q. Pham, lead researcher of this proposed studies, used to be an assistant for the former President of VCCI (His Excellency Mr. Doan Duy Thanh) and hence have a close relation with VCCI in general and Mr. Vu Tien Loc in particular. Ngoc have done the VCCI Annual Enterprise Report 2006 and VCCI Annual Enterprise Report 2007, which used as important input material for annual meeting between Primer Minister of Vietnam and the representative group of Vietnam Business Community (conducted by VCCI). Through VCCI, our research outcome could (particularly which related to research question 3 and 4) be used as input material for VCCI’s advocacy task. Moreover, in the direct way, Dr. Vu Tien Loc - is an important policy makers and also a potential audience of our research. Mr. Dau Anh Tuan, a member of the research team who is also a researcher at Legal Department of VCCI is in charge to coordinate with VCCI for this task.

Direct channel 3: Vietnam Women’s Union (VWU)

One of the Goals of the women's movement in the 2002 - 2007 period is “To take part in formulating laws and policies on gender equality and oversee their execution. To care for and protect the legitimate rights and interests of women and children”. Hence like VCCI, through VWU, our research outcome (particularly which related to research question 6) could be used as an input material for policy makers particularly who are in charge on gender, equity and poverty reduction programmes. Ms. Tran Thi Anh Thu, a member of the research team who is also a researcher at VWU could act as a coordinator for this task.

Direct channel 4: National Institute for Science and Technology Policy and Strategy (NISTPASS)

One of the most important role of National Institute for Science and Technology Policy and Strategy (NISTPASS) is to do research for as a scientific based for science and technology policies. Through NISTPASS, our research outcome (particularly which related to research question 5) could be used as an input material for policy makers. Ms. Mai P. Nguyen, a member of the research team who is also a researcher at NISTPASS could act as a coordinator for this task.
Indirect channel: Policy workshops

At least two policy workshops as an indirect channel will be conducted. The policy workshop could be successfully join-organized with one of the government bodies such as Vietnam Chamber of Commerce and Industry (VCCI) and Ministry of Trade (MOT), Ministry of Finance (MOF), Ministry of Agriculture and Rural Development (MARD). Thanks to the close relationship and wide network of DEPOCEN, it is hope that the results of this study could reach the relevant policy-makers soonest.

8. Note

1. In the draft of Political Report, it was suggested to increase the state sector’s share in GDP from current 40% to 60%, but then softened to a “leading role” (Womack 1997)


3. Policy advice was not a purpose of Ngoc and Mohnen (2004). They, however, pays much attention on modeling and interpretation and evaluation of the economic importance. They tried to answer only one research question on optimal choice of ownership structure: “If labor and capital could reallocate across sectors and types of ownership, what would be the optimum allocation of activities and the achievable level of domestic final demand?”

4. There are some lessons learned from the previous study of Ngoc and Mohnen (2004):
   - Firstly, there is a lesson on how could ownership restructuring be modeled and incorporate into a general equilibrium. The way of modeling it, as stated by Mohnen and Raa “reproduce the formulas of neoclassical growth accounting and frontier analysis in a consistent way” (Mohnen and Raa, 2002, p.4).
   - Secondly, study of Ngoc and Mohnen (2004) shows how to get handle on modeling by using Vietnamese data extracted from the national input-output table and some other sources. Programming techniques with GAUSS in running simulations would also help a lot in conducting this study.

5. In Ngoc and Mohnen (2004) only data on 2000 was employed.

9. Reference

Central Institute for Economic Management (2007), “Báo cáo của Chính phủ về Cổ phần hóa các doanh nghiệp nhà nước (Government’s report on privatization of SOEs).”


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*http://www.vneconomy.com.vn/eng/?param=article&catid=05&id=bc9e5139bfff6d*

*http://www.vneconomy.com.vn/eng/?param=article&catid=01&id=22ffe4f9470817*


10. List of team members’ prior training and experiences

(1) Team Leader: Ngoc Q. Pham (Vietnamese; age: 34; gender: male)

Ngoc has been the Research Director of Development and Policy research Centre since 2005. He is an expert in the design and implementation of socio-economic surveys and has successfully designed, conducted, evaluated the implementation of numerous surveys in Vietnam. He has gained MBA in Economics Policy and Corporate Strategy (2000) and is a PhD Candidate in Economics and Policy Studies of Technical Change (expected early 2008) in University of Maastricht of the Netherlands.

Ngoc is also the author and co–author of many publications and working papers which have been highly appreciated by economists in and outside the country, such as:


http://www.depocenwp.org/modules/download/index.php?id=8


http://nt2.fas.nus.edu.sg/ecs/wkshop/geta/prog.asp


(2) Team Member: Le Dang Trung (Vietnamese; age: 29; gender: male)

Le Dang Trung is Research Fellow at Centre for Analysis and Forecasting (CAF), Vietnam Academy of Social Sciences (VASS). Trung has successfully completed Vietnam-Netherlands MA Programme in Development Economics (2005) and a BA in Economics at National Economics University (2002). Trung has gained considerable experience in leading the design, management and evaluation of data surveys in Viet Nam and elsewhere. Trung is
also the author and co-author of many publications and working papers which have been highly appreciated by economists in and outside the country.

Trung can in charge to coordinate with CAF for our dissemination strategy to contribute on policy formulation.

(3) Team Member: Tran Thi Anh Thu (Vietnamese; age: 37; gender: female)
Tran Thi Anh Thu is an officer of the International Relations Department of the Vietnam Women’s Union (VWU) (20% of working time) and a technical assistant for project on “Training for women in micro & small enterprises, phase 2” (2001-2004), funded by Dutch Government/SAIL Foundation, co-implemented by the Vietnam Women’s Union, Maastricht School of Management and Institute of Social Studies (Netherlands) on a part-time basis (80% of working time).
Thu has gained MBA (2000) in Maastricht School of Management (The Netherlands). She has involved in many development projects on small business management, curriculum development, policy formulation to support women entrepreneurship in Vietnam.
Thu can in charge to coordinate with VWU for our dissemination strategy to contribute on policy formulation.

(4) Team Member: Dau Anh Tuan (Vietnamese; age: 31; gender: male)
Dau Anh Tuan is researcher at Legal Department of Vietnam Chamber of Commerce and Industry (VCCI). Tuan has successfully completed LL.M. in Hanoi National University (2004) and LL.B. at Hanoi law University (1999).
Tuan has involved in many development projects, particularly since 2004 to present he has actively in charge of the Project on Developing and Disseminating a Provincial Competitiveness Index - PCI which have been highly appreciated by policy makers in our country. He also is the author and co-author of many policy papers.
Tuan can in charge to coordinate with VCCI for our dissemination strategy to contribute on policy formulation.

(5) Team Member: Mai P. Nguyen (Vietnamese; age: 30; gender: female)
Mai P. Nguyen is currently a senior researcher of National Institute for Science and Technology Policy and Strategy (NISTPASS), Department of Sustainable Development Studies, 38 Ngo Quyen Str., Hanoi. Vietnam.
She hold Master of Arts in Society, Science and Technology in Europe, Maastricht University, the Netherlands and Linkoping University, Sweden (2003) and Bachelor of Law at Hanoi national University (2000).

Mai can in charge to coordinate with NISTPASS for our dissemination strategy to contribute on policy formulation.

(6) Team Member: Le Hong Lien (Vietnamese; age: 27; gender: female)

Le Hong Lien is Analyst Manager, TIM Vietnam Tiger Fund. She holds Bachelor of Business Administration (Major: Finance, Minor: Technopreneurship) at University of Singapore (NUS), Singapore.

11. Expected Capacity Building

11.1 Capacity Building

(1) Team leader: Ngoc Q. Pham

This is the first study that he works with applying general equilibrium on poverty reduction model, hence it helps him to improve research skills.

Deepen knowledge of poverty, and general equilibrium theory.

Improve relationship with other State organizations, and international agencies, and other research institutes during the research.

(2) Team member: Le Dang Trung

Deepen knowledge of statistics, impact evaluation theory.

Help others team members improve the research skills and knowledge of econometrics and statistics.

(3 & 4) Team member: Tran Thi Anh Thu and Dau Anh Tuan

Deepen knowledge of poverty, and macroeconomics theory.

Gain knowledge of applying general equilibrium on poverty reduction and economics policy.

Improve research skills particularly in modeling, English language, skills of report and paper writing, and presenting in seminars.

Improve relationship with other State organizations, and international agencies, and other research institutes during the research.

(5) Team member: Mai P. Nguyen

Deepen knowledge of poverty, and macroeconomics theory.
Improve research skills particularly in modeling, English language, skills of report and paper writing, and presenting in seminars.

Gain data process skills, knowledge of poverty, and macroeconomics theory, knowledge of causal impact and economics policy.

Improve relationship with other State organizations, and international agencies, and other research institutes during the research.

(6) Team member: Le Hong Lien

Deepen knowledge of poverty, and macroeconomics theory.

Improve research skills particularly in modeling, English language, skills of report and paper writing, and presenting in seminars.

Improve the knowledge of econometric, input-output techniques, and data processing.

11.2. Task Division

Team leader: overall responsibility, guidance and supervision over each activity, model construction, preparing policy simulations, writing the policy analysis, result interpretation, and other miscellaneous parts of the report.

Le Dang Trung: Involve in model construction, preparing policy simulations. Help others team members improve the research skills and knowledge of econometrics and statistics. Review the report and preparation for publication. In charge to coordinate with CAF for our dissemination strategy to contribute on policy formulation.

Dau Anh Tuan: model construction, run simulation and interpretation of the results, writing the section on data compilation. In charge to coordinate with VCCI for our dissemination strategy to contribute on policy formulation.

Tran Thi Anh Thu: model construction, run simulation, data compilation, interpretation of the results, write interpretation of the results. In charge to coordinate with VWU for our dissemination strategy to contribute on policy formulation.

Mai P. Nguyen: model construction, run simulation, data compilation, run simulation and interpretation of the results, write interpretation of the results. In charge to coordinate with NISTPASS for our dissemination strategy to contribute on policy formulation.

Le Hong Lien: model construction, run simulation, data compilation, interpretation of the results, write interpretation of the results.
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12. Any ethical, social, gender or environmental issues or risks which should be noted (No noteworthy risk)
13. List of past, current or pending projects in related areas involving team members

Ongoing projects:

1. **Tax Administration Baseline Survey** (direct interview; tax payer survey: 1000 observations; tax-staff survey: 1000 observations)
   - **Year:** 2007-2008
   - **Duties:** Conducting the survey and doing data analysis and writing a final report.
   - **Donor:** The World Bank

2. **FDI, labour and economic development**
   - **Year:** 2008
   - **Duties:** Developing Set of Competitiveness Indexes and doing data analysis and writing a final report.
   - **Donor:** The World Bank and General Department of Taxation

3. **VCCI Enterprise Annual Report 2007**
   - **Year:** 2008
   - **Duties:** Developing Set of Competitiveness Indexes and doing data analysis and writing a final report.
   - **Donor:** VCCI

4. **Innovation and export performance of Vietnam’s SME sector in the advent of WTO accession**
   - **Year:** 2007-2008
   - **Client:** Vietnam Economic Research Network (VERN) and International Development Research Centre (IDRC), Canada

Finished projects

1. **VCCI Enterprise Annual Report: Assessment of Potential Impacts of WTO on the 8 Key-sectors of the Vietnamese Economy**
   - **Year:** 2006
   - **Duties:** Developing Set of Competitiveness Indexes and doing data analysis and writing a final report.
   - **Donor:** VCCI

2. **Market institutions for technology transfer to SMEs in Vietnam: the study of knowledge system in agro-based food processing**
Year: 2004-2006  
Duties: Leading research consultant of a sub-project survey on fruit and vegetable sector.  
Donor: SAREC/SIDA, Sweden

3. **CARITAS's programme on sustainable likelihood for An Phu Commune, Ha Tay Province**  
Year: 2006-2009  
Duties: Design framework for and implement sustainable likelihood programme on three fields: (i) non-farm job creation; (ii) development of rural marketing and (iii) development of information and communication technology network for An Phu commune.  
Donor: CARITAS Swiss, Belgium and Luxemburg

4. **Statistical techniques in S&T policy studies**  
Year: 2006-2007  
Duties: Project leader. Responsible for writing a manual for researchers using survey techniques, especially scaling ones in S&T policy studies.  
Donor: MOSTE

5. **Capacity building on Quantitative Analysis Methods – A Vietnam-Sweden joining programme**  
Year: 2006  
Duties: Design and provide training courses (survey methods, questionnaire design, data analysis)  
Donor: SIDA-Sweden

Year: 2006  
Duties: Design and provide training courses (survey methods, questionnaire design, data analysis)  
Donor: NISTPASS

7. **Employment related policies assessment at Ha Tinh Provices (in cooperation with Ha Tinh Women Union)**  
Year: 2006  
Duties: Conduct training course for 20 key-members of Ha Tinh Women Union (questionnaire design, survey and data collection, technique on data analysis and policy assessments)
Donor: Oxfam Belgium

8. **Market for the poor: 50 cases of successful link to the market**
   
   Year: 2005
   
   Duties: Conduct the interview and write the report
   
   Donor: DFID/ADB

9. **Learning via Networking with Multinationals**
   
   Year: 2004-2005
   
   Duties: Responsible for developing questionnaire and administering a survey of 100 firms in auto-motor part industry. Contribute to academic report of the project
   
   Donor: IDRC/Canada

10. **Acquisition Strategies in Emerging Markets**
    
    Year: 2001-2003
    
    Duties: Member of the international research team. Participate in developing research tools (questionnaire), supervising a survey of 150 FDI firms in Vietnam. Conduct case studies, and write a background paper on FDI in Vietnam. Contribute to two chapters of the resulting book of the project.
    
    Donor: DFID/London Business School

    
    Year: 2000-2002
    
    Duties: Member of the international research team. Participate in developing research tools kit. Supervise a survey of 312 small firms and 39 key stakeholders in Vietnam. Conduct case studies. Analyze data and write a background paper.
    
    Donor: ILO, Geneva